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(54) Title: A COLLAPSIBLE ANIMAL TRAP			
(57) Abstract <p>A collapsible trap (10) made from welded wire mesh, the trap comprising a box-like cage including a top section (11), a bottom section (12) and opposing side walls (13 and 14) hingedly coupled along top and bottom edges thereof by hinge clips so that the cage collapses in a parallelogram action. The cage includes a front door (15) that swings about a horizontal hinge axis on hinge clips (shown generally at 16) and a rear door (17) which swings about a vertical hinge axis (at 18). The rear door is shown ajar in phantom (at 19) and can be opened so that the trap can be baited. A trigger mechanism (23) is triggered by a drop floor (20) to retract a trigger bolt (27) to release the front door (15) to trap an animal which walks on the drop door.</p>			

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"A COLLAPSIBLE ANIMAL TRAP"**TECHNICAL FIELD OF THE INVENTION**

THIS INVENTION relates to a collapsible animal trap and in particular but not limited to a trap for trapping feral or straying domestic cats.

5 BACKGROUND ART

Many field research workers who trap cats have found that the traps available to them have design features that limit their efficiency.

There are many cat traps commercially available, all of which researchers find too voluminous to transport and store. At the same time, most of these traps 10 are too small to be efficient. Most traps require that a cat actually takes a bait to operate a door closing mechanism, so while a cat may enter a trap and sniff a bait, the cat, in many cases, will not be trapped. Researchers have found that many feral cats will not take a bait unless it is a natural bait. However, most cats will approach and sniff at an attractant.

15 OUTLINE OF THE INVENTION

It is an object of the present invention to alleviate, at least to some degree, the aforementioned problems associated with the prior art.

In one aspect therefore, the present invention resides in a collapsible animal trap comprising a collapsible cage with front and rear rotating doors, a 20 weight responsive actuator which typically is a drop floor and a trigger mechanism, the front door being mechanically closable when released from a set state by the action of the trigger mechanism in response to an animal walking on the actuator.

The cage is typically a box-like cage including a top section, a bottom 25 section and opposing side walls hingedly coupled along top and bottom edges thereof so that the cage can collapse with a parallelogram action. Preferably, the cage is about twice as long as it is wide and high. Preferably, the cage is about 760mm long.

The rear door is preferably hinged to one of the side walls by a rear door 30 hinge means and there is provided releasable rear door locking means to secure the rear door closed. The rear door locking means preferably also serves to hold the cage in its operatively assembled state. Typically, the rear door is hinged

about a vertical axis when the cage is assembled so as to swing up to 270°. The rear door is typically adjacent a rear edge of the drop floor and is used for access to bait the trap. Preferably, the rear door locking means also serves to lock the trap in its collapsed state for transport purposes. The rear door locking means is 5 typically a pin and hinged eyelet means arranged so that the pin operatively extends through the eyelets adjacent the juncture between the rear door and the side wall opposite the rear door hinge means.

The front door is preferably hinged to the top section so that it can be raised to a generally horizontal position when the trap is set.

10 The weight responsive actuator is typically a drop floor which can be formed as part of the bottom section or as a separate floor section or floor supporting frame located inside the bottom section. It is preferable to employ the drop floor as a major portion of the bottom section so that the bottom section includes a fixed front section adjacent the front door with the drop floor 15 extending rearwardly.

20 The trigger mechanism is typically a rotatable mechanism fitted to the top section of the trap, the trap having a connecting rod extending from adjacent a rear edge of the drop floor and being coupled to the trigger mechanism, the trigger mechanism having laterally spaced first and second offset levers, the first lever being coupled to the connecting rod and the second lever being coupled to an actuated means which is typically a trigger bolt extending from the trigger mechanism to the front door. Preferably, the trigger mechanism is secured to the top section so that it rotates about a transverse axis but includes holding means 25 limiting lateral movement of the trigger mechanism.

25 The top section typically includes an actuated means guide which is preferably projecting eyelets located at spaced intervals along the top section to guide the trigger bolt.

30 The front door typically includes an actuated means receiver which is typically a tongue releasably engagable with a free end of the trigger bolt, the trigger bolt having detent means located adjacent the free end for releasably holding the tongue and thereby holding the door in its open or set condition, the trigger bolt being automatically retracted when an animal inside the trap stands

on the actuator, the trigger mechanism then operates to retract the trigger bolt, thereby closing the front door and thereby trapping the animal.

An automatic front door locking means is preferably employed, and in one preferred embodiment, the front door locking means comprises a slidable crossbar and spaced crossbar guides so the crossbar is moveable from a raised position above the set front door to a lowered position across the front door when the front door is closed, thereby inhibiting the front door from being opened. The guides preferably project from each side wall with the front door being positioned between the guides, the crossbar being releasable from one of the guides and moveable to a storage position when the trap is collapsed.

The crossbar guides are typically inclined bars extending from a position adjacent the bottom section upwardly and outwardly and looping back to a position adjacent the top section. The guides are generally formed in the plane of the side walls so that when the trap is collapsed, the guides provide carrying handles for the trap.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention can be more readily understood and be put into practical effect, reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the present invention and wherein:-

20 Figure 1 is a perspective view from the rear of a collapsible animal trap according to the present invention showing the trap in its set state;

Figure 2 is a perspective view from the front; and

Figure 3 is an end view illustrating how the trap is collapsed and assembled.

METHOD OF PERFORMANCE

Referring to the drawings and initially to Figures 1 and 2, there is illustrated a collapsible trap 10 made from welded wire mesh, the trap comprising a box-like cage including a top section 11, a bottom section 12 and opposing side walls 13 and 14 hingedly coupled along top and bottom edges thereof by hinge clips so that the cage collapses in a parallelogram action. The cage includes a front door 15 that swings about a horizontal hinge axis on hinge clips shown generally at 16 and a rear door 17 which swings about a vertical hinge axis at 18.

The rear door is shown ajar in phantom at 19 and can be opened so that the trap can be baited.

The bottom section includes an actuator in the form of a drop floor section 20 hinged adjacent its front end at hinge clips 21 and 22 and being connected to a trigger mechanism shown generally at 23 by a vertically extending connecting rod 24. The trigger mechanism includes two levers shown at 25 and 26 which are offset at about 60°. When the drop floor 20 is trodden on by an animal entering the trap, the trigger mechanism actuates an actuated means which, in this case, involves retraction of the trigger bolt 27. The free end 29 of the trigger bolt 27 has a detent means in the form of a transverse groove which locates under the raised section of the tongue 30 when the trap is set as shown. The action of levers 25 and 26 as the trigger mechanism rotates about a transverse axis shown generally at 28 is to retract the trigger bolt 27. As the bolt 27 is retracted, its free end at 29 releases the tongue 30 of door 15 and the door 15 falls to its closed position shown in phantom at 31 in Figure 2.

At the same time, when the front door falls, the front door locking means in the form of a bail bar 32 slides down guide rails 33 and 34 to the position illustrated in phantom at 35 thereby preventing the door 15 from being opened and thereby trapping the animal inside the cage.

The bail bar 32 includes a loop 36 at one end and a hook 37 at the other end and it will be appreciated that as the cage collapses with the parallelogram action, the hook 37 will automatically be released from the guide 34 and can be swung around to allow the cage to collapse fully.

As can be seen in Figure 1, the door 17 is held closed by a vertical pin 38 and this can be removed to the position illustrated in phantom at 39, and in turn, the hinged eyelets 40, 41 and 42 are released.

It will be appreciated that the pin 39 locks the whole trap in its assembled state and as soon as the pin 39 is removed, the trap will automatically collapse. An operator need only manage movement of the doors and the bail bar 32 in order to effectively collapse the trap. Once the trap is collapsed, just by grasping handles 43 and 44, the trap can again be raised and reassembled using this procedure in reverse.

Referring now to Figure 3, the assembly and collapsing process is more clearly illustrated. The trap is shown in its assembled state in solid outline with each stage in the assembly being shown in phantom following the sequence 1 to 6. The trap is collapsed as a reverse of the process illustrated.

5 In step 1, the pin 38 is removed from the collapsed trap, in step 2 the top section and side walls are raised by reason of the parallelogram action, the rear door is held by a small wire clip 45 and this is unclipped in step 3 to release the rear door. The rear door is swung through 270° at 4 and the rear door is locked by replacing pin 38, while at about the same time, the hook 37 at the bail bar 32 10 is located around guide 34 before or after the front door is swung about its hinge at step 6. The rear door can be released to bait the trap and the front door raised to engage the trigger bolt so the trap is set.

15 Whilst the above has been given by way of illustrative example of the present invention, many variations and modifications thereto will be apparent to those skilled in the art without departing from the broad ambit and scope of the invention as herein set forth in the appended claims.

CLAIMS

1. A collapsible animal trap comprising a collapsible cage with front and rear rotating door, a weight responsive actuator and a trigger mechanism, the front door being mechanically closable when released from a set state by the action of the trigger mechanism in response to an animal walking on the actuator.
2. A collapsible animal trap according to claim 1 wherein the cage is box-like including a top section, a bottom section and opposing side walls hingedly coupled along top and bottom edges thereof so that the cage can collapse with a parallelogram action.
3. A collapsible animal trap according to claim 1 wherein the cage is a box-like cage being about twice as long as it is wide and high.
4. A collapsible animal trap according to claim 3 wherein the cage is about 760mm long.
5. A collapsible animal trap according to claim 1 or claim 2 wherein the rear door is hinged to one of the side walls by a rear door hinge means and there is provided releasable rear door locking means to secure the rear door closed, the rear door locking means also serving to hold the cage in its operatively assembled state.
6. A collapsible animal trap according to claim 1 or claim 2 wherein the rear door is hinged to one of the side walls by a rear door hinge means and there is provided releasable rear door locking means to secure the rear door closed, the rear door locking means also serving to hold the cage in its operatively assembled state, the rear door locking means being releasable so the trap can collapse and serving in a second position to lock the trap in its collapsed state for transport purposes.
7. A collapsible animal trap according to claim 1 or claim 2 wherein the rear door is hinged to one of the side walls by a rear door hinge means and there is provided releasable rear door locking means to secure the rear door closed, the rear door locking means comprising a pin and co-operating hinged eyelet means arranged so that the pin operatively extends through the eyelets adjacent the side wall opposite the rear door hinge means.
8. A collapsible animal trap according to claim 2 wherein the front door is

hinged to the top section so that it can be raised to a generally horizontal position when the trap is set.

9. A collapsible animal trap according to claim 1 wherein the weight responsive actuator is a drop floor formed as a frame being part of the bottom section or as a separate floor section located inside the bottom section.

10. A collapsible animal trap according to claim 1 or claim 9 wherein the weight responsive actuator has a surface area covering a major portion of the bottom section so that the bottom section includes a fixed front section adjacent the front door with the actuator extending rearwardly and upwardly when the trap is set.

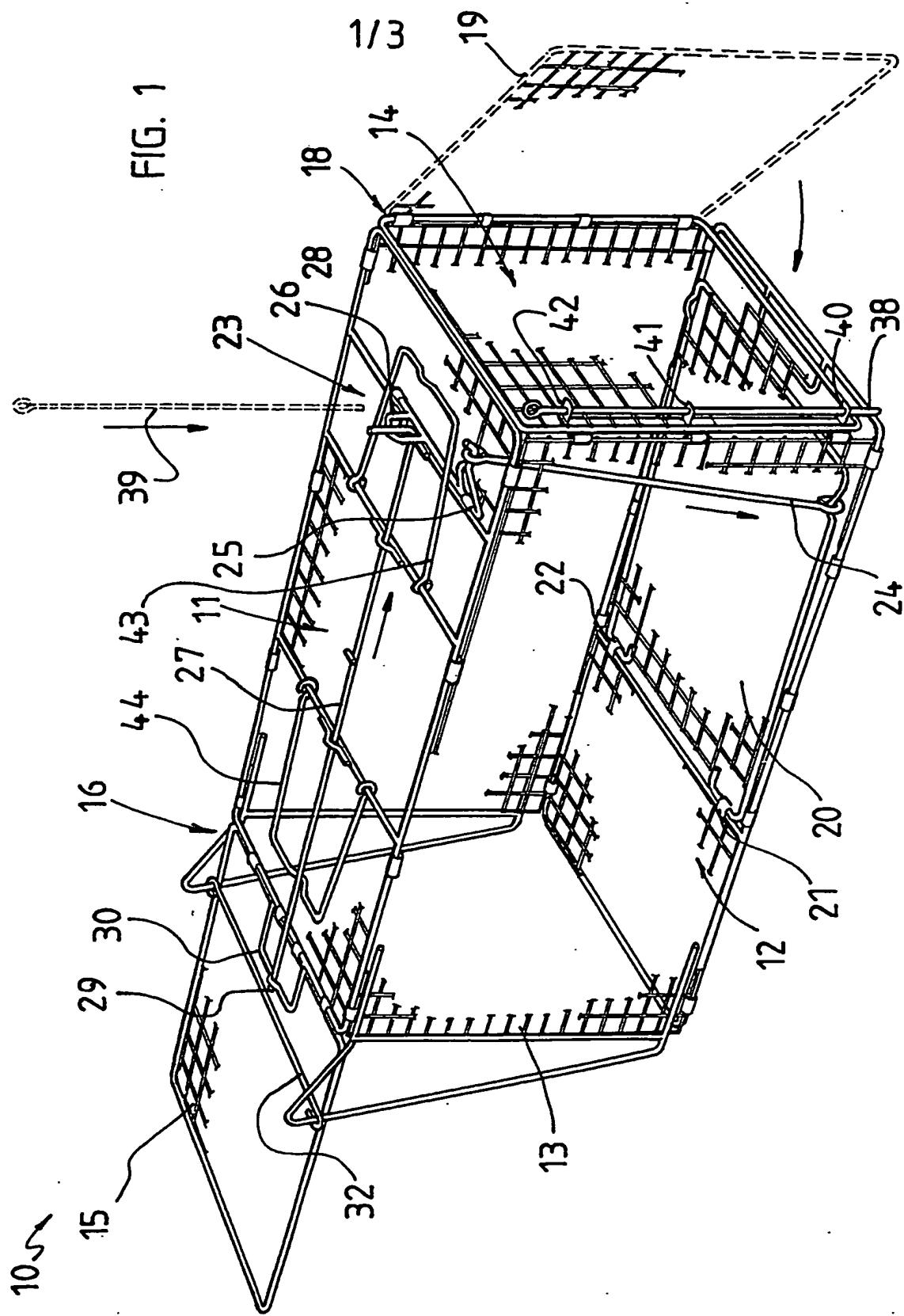
11. A collapsible animal trap according to claim 1 wherein the trigger mechanism is a rotatable mechanism fitted to the top section of the trap, the trap having a connecting means extending from adjacent a rear edge of the actuator and being coupled to the trigger mechanism, the trigger mechanism having laterally spaced first and second offset levers, the first lever being coupled to the connecting means and the second lever being coupled to an actuated means extending from the trigger mechanism to the front door, the actuated means engaging the front door and releasably retaining it in a set position so that when an animal walks on the actuator, the connecting means moves the first lever thereby rotating the trigger mechanism to move the second lever, thereby actuating the actuated means to release the front door.

12. A collapsible animal trap according to claim 11 wherein the actuated means comprises a longitudinally extending trigger bolt slidably disposed in guide means located at spaced intervals along the top section.

13. A collapsible trap according to claim 1 wherein the front door includes an actuated means receiver engagable with a free end of a trigger bolt adapted to be retracted by the trigger mechanism, the trigger bolt having detent means located adjacent the free end thereof for releasably holding the front door in its open or set condition, the trigger bolt being automatically retracted when an animal inside the trap stands on the actuator to trigger the trigger mechanism which in turn operates to retract the trigger bolt thereby closing the front door and trapping the animal.

14. A collapsible animal trap according to any one of claims 1, 2, 3, 9, 11 or 13 including automatic front door locking means responsive to closing of the front door to lock the front door in a closed position.
15. A collapsible animal trap according to any one of claims 1, 2, 3, 9, 11 or 13 including automatic front door locking means responsive to closing of the front door to lock the front door in a closed position, the front door locking means comprising a slidable crossbar and spaced crossbar guides so the crossbar is moveable from a raised position above the set front door to a lowered position across the front door when the front door is closed, thereby inhibiting the front door being opened.
16. A collapsible animal trap according to any one of claims 1, 2, 3, 9, 11 or 13 including automatic front door locking means responsive to closing of the front door to lock the front door in a closed position, the front door locking means comprising a slidable crossbar and spaced crossbar guides so the crossbar is moveable from a raised position above the set front door to a lowered position across the front door when the front door is closed, thereby inhibiting the front door being opened, the guides project from each side wall with the front door positioned between the guides, the crossbar being releasable from one of the guides and moveable to a storage position when the trap is collapsed.
17. A collapsible animal trap according to any one of claims 1, 2, 3, 9, 11 or 13 including automatic front door locking means responsive to closing of the front door to lock the front door in a closed position, the front door locking means comprising a slidable crossbar and spaced crossbar guides so the crossbar is moveable from a raised position above the set front door to a lowered position across the front door when the front door is closed, thereby inhibiting the front door being opened, the crossbar guides being inclined bars extending from a position adjacent the bottom section upwardly and outwardly and looping back to a position adjacent the top section.

FIG. 1



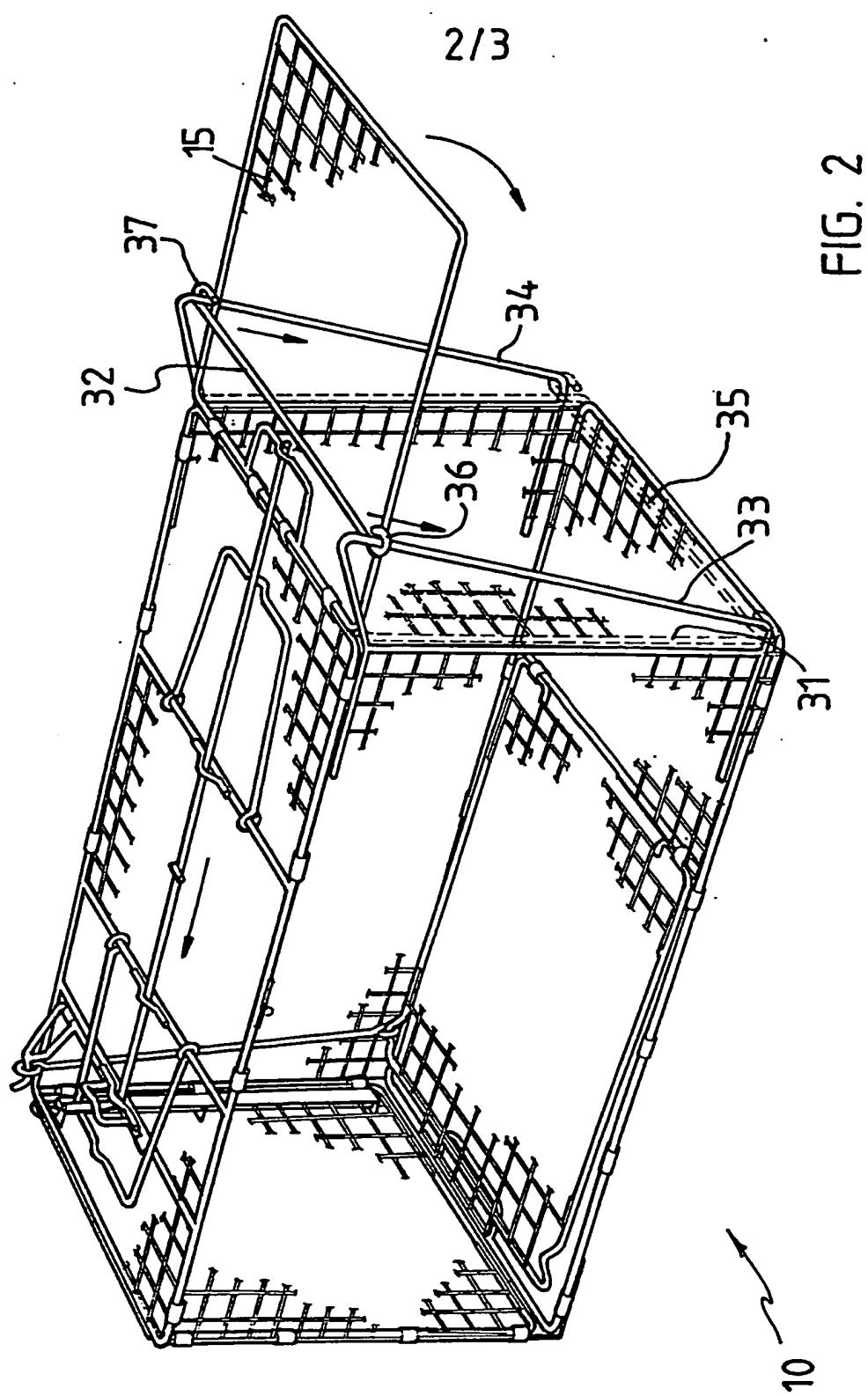
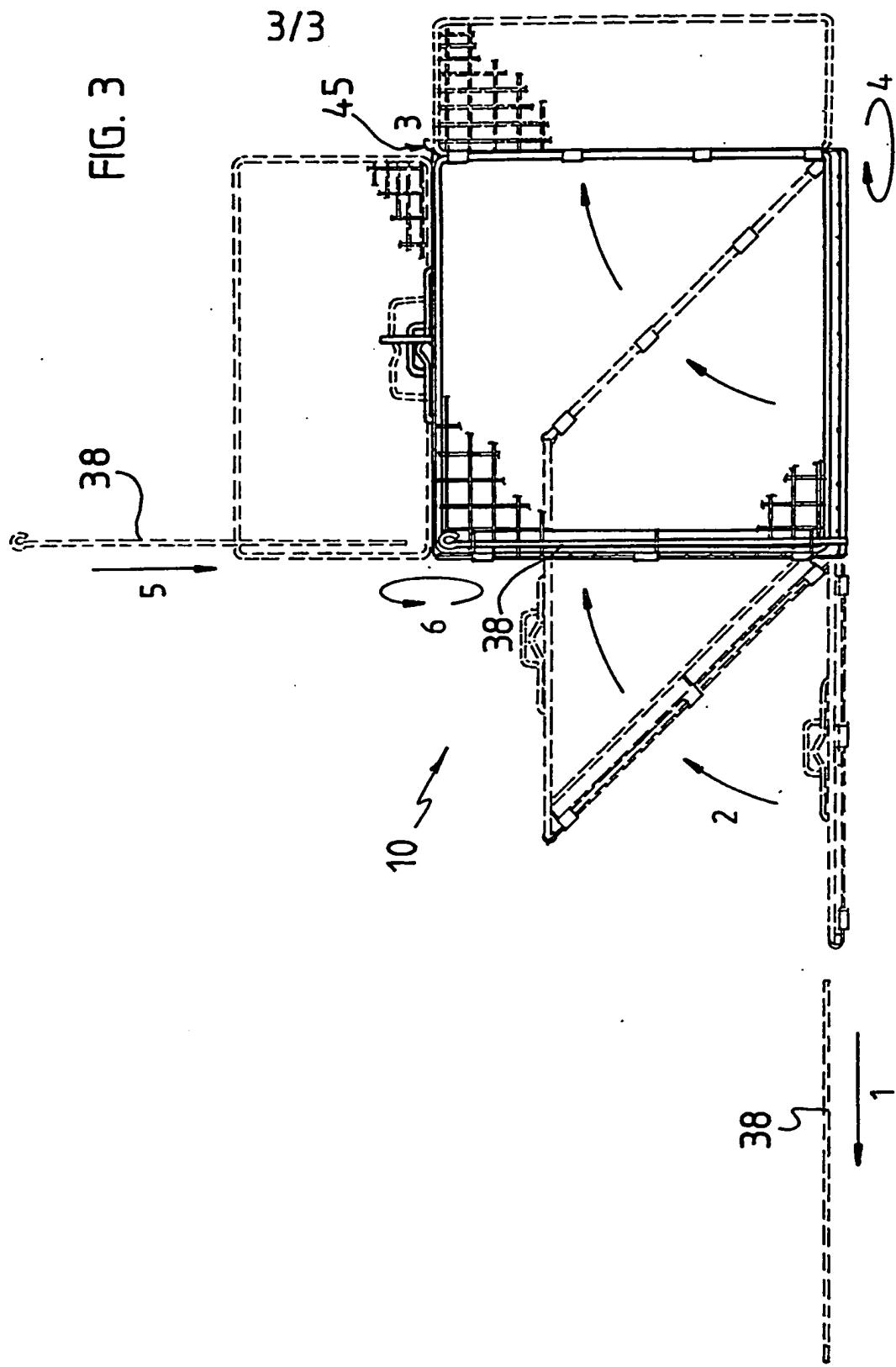


FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.

/ PCT/AU 94/00519

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.⁶ A01M 23/18, 23/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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IPC A01M 23/18, 23/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X	US,A, 3913258 (SOUZA et al) 21 October 1975 (21.10.75) Column 2 line 62 to Column 3 line 35, claims	1-17
X	US,A, 3834063 (SOUZA et al) 10 September 1974 (10.09.74) Column 2 line 26 to Column 3 line 35	1-17
X	US,A, 1728701 (EDWIN F. SHOLIN) 17 September 1929 (17.09.29) Claims	1-10
A	US,A, 4567688 (McKEE) 4 February 1986 (04.02.86) Claims	1-17

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
A	US,A, 4899484 (MORIN) 13 February 1990 (13.02.90) Claims	1-17
A	US,A, 2488202 (ARTHUR E. KERN) 15 November 1949 (15.11.49) Claims	1-17
A	US,A, 2544026 (ARTHUR E. KERN) 6 March 1951 (06.03.51) Claims	1-17
A	US,A, 4703582 (DE SENA) 3 November 1987 (03.11.87) Claims	1-17
A	AU,A, 21297/29 (EDWIN GLANVIL LANGTON) 29 July 1930 (29.07.30) Claims	1-17

INTERNATIONAL SEARCH REPORT
Information on patent family member.

International application No.
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US	3913258	US	3834063	CA	1027361	IN	141775
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